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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/381,528	01/04/00	TAKETOMI Y	YAO-V04302

MMC2/1013

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EXAMINER	
CHANG, A	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 10/13/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/381,528	Applicant(s) Taketomi et al
	Examiner Audrey Chang	Group Art Unit 2872

☒ Responsive to communication(s) filed on *Aug 9, 2000*.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-66* is/are pending in the application.

Of the above, claim(s) *2, 3, 8-12, 14, and 19-66* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1, 4-7, 13, and 15-18* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *6*

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of species group IA (directed to use hologram to generate light having information of the object) including claims 4-7 and 15-18 in Paper No. 8 is acknowledged.

2. Claims 2-3, 8-12, 14, and 19-66 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention group and species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 4-7, and 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the phrase "light having information of an object ... by using light having passed through a slit" that appears to be vague and indefinite since it is not clear if the slit is the object or not. It is also not clear, as referred to claims 4, 6 and 7, if the slit is the same slit used to record the transmission hologram. It is further unclear if the slit is used to reconstruct the object information beam when used to record the reflection type hologram.

The phrase "longitudinal direction of the slit" recited in claim 7 appears to be vague and indefinite since it is not clear what direction, as referred to other elements in the display apparatus or referred to the actual slit aperture, is considered to be the "longitudinal direction".

The phrase "the slit" recited in claim 17 appears to be vague and indefinite since it lacks proper antecedent basis from its base claim. Claim 18 inherits the rejection from its base claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 4, and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Molteni et al (PN. 5,662,815) in view of the patent issued to Benton (PN. 4,498,729).

Molteni et al teaches a head-up display that is comprised of reflection type holographic stereograms (13) and a light source (25) wherein the holographic stereograms (H_2) formed by the interference between an object light and a reference light (38) with the object light produced by illuminating and reconstructing a transmission hologram (H_1) having the object information recorded therein, (please see Figure 6 and columns 13-14). Molteni et al teaches that the transmission hologram (H_1) is formed by providing a diffused object light via diffusion screen (30) through a slit aperture (29)to a recording plate and a reference light (31) also to the recording plate to interfere with each other, (please see Figure 5). As the result, a plurality of slits (17) and a plurality of the object images are recorded in the transmission hologram (H_1) and when it is reconstructed using coherent light (36) a plurality of slits and the corresponding images are reproduced as the

object light to record the reflection type holographic stereograms (H_2), (please see Figures 5-6, column 13). This reference has met all the limitations of the claims with the exception it does not teach explicitly that the reconstructing light (36) for the transmission hologram to produce the object light passes through a slit. However since the slits are recorded in the transmission hologram an extra slit would not be necessary if reconstruction of all of the slits and the object images for recording the holographic stereogram are intended. Benton in the same field of endeavor teaches that alternatively an extra slit (30, 31) adjacent to the transmission hologram (H_1) however could be used to reconstruct the single slit image to record the reflection hologram (H_2), (please see Figure 3 of Benton). It would therefore have been obvious to one skilled in the art to apply the teachings of Benton to add an extra slit in the path of the reconstruction light (36) of Molteni et al for the benefit of allowing recording the slit object information to the reflection hologram one slit at the time.

With regard to claim 4, Molteni et al teaches that the object information is obtained by using camera system (27) and projector system (32) but it does not teach explicitly that the object information could be also obtained by irradiating the object. However such practice is extremely common in the art as demonstrated by the teachings of Benton wherein the object information is obtained by irradiating the object, (please see Figure 1). With regard to claim 7, Molteni et al does not teach explicitly to include a cylindrical lens. Benton in the same field of endeavor teaches to use a cylindrical lens (37) to converge the illuminating light through a slit (38) for illuminating the transmission hologram (H_1), (please see Figure 3). It would therefore have been obvious to one skilled in the art to apply the teachings of Benton to include a cylindrical lens in the optical path of the reconstruction light beam to add focus and convergence to the light beam.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Molteni et al and Benton as applied to claims 1 and 4 above, and further in view of the patent issued to Odhner et al (PN. 5,613,022).

The head up display comprising a reflection type holographic stereogram taught by Molteni et al in combination with the teachings of Benton as described for claims 1 and 4 above have met all the limitations of the claim. These references however do not teach that the diffusion of the object light is caused by using a ground glass. Odhner et al in the same field of endeavor teaches a holographic recording scheme wherein the object light passes through a ground glass (112) to create a diffused object light which then passes through a slit (116) to record a slit object image holographically on a recording medium, (please see Figure 13). It would therefore have been obvious to one skilled in the art to apply the teachings of Odhner et al to use ground glass as the alternative diffusing means to provide diffused object light.

8. Claims 13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over he patent issued to Molteni et al.

Molteni et al teaches a head-up display that is comprised of a reflection type holographic stereograms (13) and a light source (25) wherein the holographic stereogram (H_2) is formed by the interference between an object light and a reference light (38) with the object light produced by illuminating and reconstructing a transmission hologram (H_1) having the object information recorded therein, (please see Figure 6, columns 13-14). Molteni et al teaches that the transmission hologram (H_1) is formed by providing a diffused object light via diffusion screen (30) through a slit aperture (29) to a recording plate and a reference light (31) also to the recording plate to interfere with each other, (please see Figure 5). As the result, a plurality of slits (17) and a plurality of the object images are recorded in the transmission hologram (H_1) and when it is reconstructed

using coherent light (36) a plurality of slits and the corresponding images are reproduced as the object light for recording the reflection type holographic stereograms (H_2), (please see Figure 6).

With regard to claim 15, Molteni et al teaches that the object information is obtained by using camera system (27) and projector system (32) but it does not teach explicitly that the object information could be also obtained by irradiating the object. However such practice is extremely common in the art and such modification would have been obvious to one skilled in the art. With regard to claim 16, Molteni et al teaches that the reference beam (38) is the same source of the light source (25) which is a broad band light source. This means that the reference light is a superposition of light beams with different frequency spectrum. Molteni et al does not teach explicitly about the reference beam direction as opposed to the direction of the diffusion however such modification is either inherent in the disclosure of the reference or an obvious modification to one skilled in the art for the benefit of creating particular phase relationship between the object beam and reference beam therefore creating particular feature in the holograms.

9. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Molteni et al as applied to claim 13 above, and further in view of the patent issued to Benton.

The head up display comprises a reflection type holographic stereogram as taught by Molteni et al as described for claim 13 above has met all the limitations of the claims with the exception that it does not teach explicitly that the reconstructing light (36) for the transmission hologram to produce the object light passes through a slit. However since the slits are recorded in the transmission hologram an extra slit would not be necessary if reconstructing all of the slits and the object images for recording the holographic stereogram are intended. Alternatively, Benton in the same field of endeavor teaches that an extra slit (30, 31) placed adjacent to the transmission hologram (H_1) could be used to reconstruct the single slit image to record the

reflection hologram (H_2), (please see Figure 3 of Benton). It would therefore have been obvious to one skilled in the art to apply the teachings of Benton to add an extra slit in the path of the reconstruction light (36) of Molteni et al for the benefit of allowing the recording of the slit object information to the reflection hologram one slit at the time. Claim 18 recites the same feature as in claim 16 and it is rejected for the same reasons as for claim 16 above.

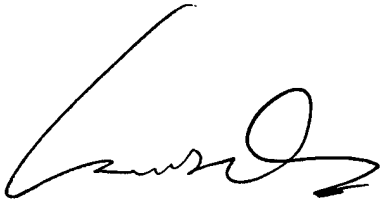
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chang whose telephone number is (703) 305-6208.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Papers related to this application may be submitted to Group 2800 through facsimile transmission. Papers should be faxed to Group 2800 via PTO Fax Center (fax number 703-308-7722) located in Crystal Plaza 4.

A. Chang

October 11, 2000



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